Table 1 Basic information of the fourteen dam failures

Number	Reservoir	Site	T_B	H/m	$S_W/10^4\,m^3$	M_B	W_B	L/people
1	Baogaidong	Liuyang, Hunan	1954.07.25 12:00	33.6	1 100	Overtopping	Storm	466
2	Chunjiang	Danzhou, Hainan	1958.09.12 /	15.8	5 600	Overtopping	Light rain	63
3	Jiahezi	Changji, Sinkiang	1961.04.10 18:00	18.0	8 000	Leakage	Sunny	80
4	Liujiatai	Baoding, Hebei	1963.08.08 4:00	35.9	4 054	Overtopping	Storm	948
5	Dongkoumiao	Ningbo, Zhejiang	1971.06.02 5:50	21.5	255	Landslide	Moderate rain	186
6	Shijiagou	Pingliang, Gansu	1973.08.25 5:30	28.6	86	Overtopping	Storm	81
7	Lainiaoyuan	Linhai, Zhejiang	1980.08.21 15:00	14.0	13	Poor quality	Storm	3
8	Shibaxu	Linhai, Zhejiang	1980.08.21 15:00	15.0	16	Poor quality	Storm	3
9	Gouhou	Hainan, Qinghai	1993.08.27 21:00	71.0	330	Leakage	Light rain	320
10	Chashankeng	Enping, Guangdong	1998.06.26 6:15	22.0	597	Mismanagement	Storm	34
11	Dalugou	Liangshan, Sichuan	2001.10.03 9:10	44.0	/	Termites building nests	Storm	26
12	Qixianhu	Zhaotong, Yunnan	2005.07.21 6:20	20.0	8	Poor quality	Heavy rain	16
13	Dahe	Huadian, Jilin	2010.07.28 7:00	30.0	418	Overtopping	Storm	31
14	Shenjiakeng	Zhoushan, Zhejiang	2012.08.10 5:00	28.5	24	Leakag	Typhoon	11

Table 2 Four categories of *IFL*

categories	*IFL*
#1: *L*-causing factor	severity of dam break flood (S_F)
	dam break mode (M_B)
	water storage (S_W)
#2: *L*-prone environment	dam break time (T_B)
	weather during dam break (W_B)
	building vulnerability (V_B)
	average distance from affected area to dam (D_D)
#3: affected body	population at risk (P_R)
	understanding of dam break (U_B)
#4: rescue condition	warning time (T_W)
	evacuation condition (E_C)

Table 3 Parameter estimation

Parameter	Estimate	Std. error	95% confidence interval	
			Lower	Upper bound
a	-0.0001	0.0003	-0.0008	0.0005
b	0.0109	0.0035	0.0024	0.0195
c	-0.0004	0.0019	-0.0050	0.0041
d	-0.1962	0.0625	-0.3492	-0.0432
g	0.3332	0.0994	0.0901	0.5763
h	-0.1004	0.0359	-0.1881	-0.0127

Table 4 Contrast in modeling results and real values of f_L and L

Reservoir	Real value		Graham method		D&M method		Proposed method	
	L_0	f_{L0}	L_1	f_{L1}	L_2	f_{L2}	L	f_L
Baogaidong	466	0.034	3 425	0.250	103	0.008	451	0.033
Chunjiang	63	0.035	18	0.010	13	0.007	50	0.028
Jiahezi	80	0.015	37	0.007	17	0.003	78	0.015
Liujiatai	948	0.014	/	/	127	0.002	945	0.014
Dongkoumiao	186	0.040	1 175	0.250	57	0.012	179	0.038
Shijiagou	81	0.270	12	0.040	6	0.019	6	0.021
Lainiaoyuan	3	0.033	1	0.010	2	0.027	3	0.033
Shibaxu	3	0.033	1	0.010	2	0.027	3	0.033
Gouhou	320	0.011	7 500	0.250	160	0.005	363	0.012
Chashankeng	34	0.008	1	0.000	0	0.000	33	0.008
Dalugou	26	0.017	15	0.010	11	0.008	46	0.030
Qixianhu	16	0.030	5	0.010	7	0.013	14	0.027
Dahe	31	0.008	152	0.040	8	0.002	68	0.018
Shenjiakeng	11	0.039	3	0.010	5	0.017	11	0.039

Table 5 Recommended fatality (Graham) for estimating *L* resulting from dam failure

S_F	T_W (minutes)	U_B	f_L (Fraction of people at risk expected to die)	
			Suggested	Suggested Range
high	no warning	not applicable	0.75	0.30 to 1.00
	15 to 60	vague	Use the values shown above and apply to the number of people who remain in the dam failure floodplain after warnings are issued. No guidance is provided on how many people will remain in the floodplain.	
		precise		
	more than 60	vague		
		precise		
medium	no warning	not applicable	0.15	0.03 to 0.35
	15 to 60	vague	0.04	0.01 to 0.08
		precise	0.02	0.005 to 0.04
	more than 60	vague	0.03	0.005 to 0.06
		precise	0.01	0.002 to 0.02
low	no warning	not applicable	0.01	0.0 to 0.02
	15 to 60	vague	0.007	0.0 to 0.015
		precise	0.002	0.0 to 0.004
	more than 60	vague	0.0003	0.0 to 0.0006
		precise	0.0002	0.0 to 0.0004